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Mr. Robert Krivinskas
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Reference: CLEAN Contract No. N62472-90-D-1298, Contract Task Order No. 0173

Subject: Preliminary Sample Collections, Old Fire Fighting Training Area, NETC, Newport, RI

Dear Mr. Krivinskas:

Attached are four copies of the results from the preliminary sample collections performed by URI GSO at the Old Fire Fighting Training Area in November, 1995. This information will be used to assist the EAB in the selection of sample stations for the Off-Shore Ecological Risk Assessment for the site, described in Addendum C to the Work Plan For Ecorisk and Monitoring at Navy Sites.

Additional copies of this information have been forwarded to other members of the EAB as noted in the distribution list.

If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

Stephen S. Parker
Project Manager

SSP/gmd

Enclosures

- c: B. Wheeler, NETC Newport (w/enc. - 4)
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Preliminary Survey of Coaster's Harbor Surface Sediments

John King

A preliminary survey of Coaster's Harbor was undertaken on November 17, 1995 to determine the oxidation state of the surface sediments. A Smith McIntyre dredge sampler was used to obtain surface sediment samples at ten stations shown in Figure 1. The lithology was described and pH measurements were made in the field using an Orion Model 250A pH meter (see Table 1). We attempted to do Eh and dissolved oxygen measurements in the field using respectively Lazar Research Laboratories ORP-146 Microredox needle probe and a Lazar Research Laboratories DO-166 Dissolved Oxygen microprobe. The instruments were not suitable for field measurements. For this reason, subcores were obtained from the grab samples using 2.7 inch diameter polycarbonate core tubes. The tubes were stored vertically at 4°C in a cooler and transported to the laboratory for analysis.

We were able to obtain dissolved oxygen measurements in the laboratory (see Table 1). Unfortunately, the Microredox needle probe was defective and we were not able to obtain Eh measurements. The observed pH values were similar in both the field and subcores and are accurate.

Dissolved oxygen values for well oxygenated, seawater approximate 8 ppm. The values observed in Coaster's Harbor surface sediments decreased from the mouth of the harbor (2.72 ppm) to the innermost sampling station (1.98 ppm at Station 7). The values also decreased with depth in the subcores. The observed trends in dissolved oxygen concentrations are probably an accurate reflection of environmental trends. However, the needle probe has a very slow response time (5-10 minutes/measurement) and probably allows oxygen to penetrate into the sample during the initial insertion of the probe. It is improbable that oxygen concentrations of 2 ppm would be observed in sediments with a strong H₂S odor. Therefore, these values represent maximum concentrations, and actual concentrations may either be significantly lower, or zero.

Stations 4-10 have anoxic sediments near to the sediment-water interface based on the observed depth of the redox discontinuity and the presence of a H₂S odor, whereas stations 1-3 have relatively better oxygenated sediments.

Coasters Harbor

STATION	Latitude	Longitude	Depth (feet)	Redox Discont	Field pH	Field Temp (C)	Core length (cm)	Lab pH	Lab Temp (C)	Lab DO (mm Hg)	Lab DO (ppm) (*8.5/150)	Date of Lab DO	Lithology	Comments
Station 1 surf	41 30 961 N	71 19 752 W	10.3	1.5-2 cm	7.40	9.8	7.0	7.71	16.5	48.0	2.72	11/17/95	silty sand with shells	Crepidula flat, emergent vegetation
Station 1 2 cm										46.0	2.61	11/17/95		
Station 2 surf	41 30 948 N	71 19 690 W	9.1	1 cm	7.27	7.8	10.0	7.33	10.8	45.3	2.57	11/17/95	silty sand with abundant shells	Crepidula flat, abundant worms, emergent vegetation
Station 2 2 cm										44.1	2.50	11/17/95		
Station 2 4 cm										43.9	2.49	11/17/95		
Station 2 6 cm										44.0	2.49	11/17/95		
Station 3 surf	41 30 892 N	71 19 660 W	7.3	1.5-2 cm	7.59	8.9	7.5	7.64	12.2	43.1	2.44	11/17/95	silty sand with abundant shells	Crepidula flat, live oysters and quahogs
Station 3 2 cm										41.9	2.37	11/17/95		
Station 4 surf	41 30 941 N	71 19 534 W	8.3	4 mm	7.25	8.4	9.5	7.27	11.9	41.5	2.35	11/17/95	sandy silt with some shells	muddy Crepidula flat, H ₂ S smell from sediment
Station 4 2 cm										39.6	2.24	11/17/95		
Station 4 4 cm										38.9	2.20	11/17/95		
Station 5 surf	41 30 888 N	71 19 468 W	7.6	1 cm	6.42	8.4	11.5	6.33	12.3	40.9	2.32	11/17/95	clayey silt with some Crepidula	Anoxic mud, strong H ₂ S smell
Station 5 2 cm										40.1	2.27	11/17/95		
Sta 5 2 cm from bot										34.4	1.95	12/4/95		
Station 6 surf	41 30 848 N	71 19 471 W	7.6	2 mm	7.11	8.4	14.0	7.08	13.3	42.1	2.39	11/17/95	clayey silt with one Crepidula shell	Anoxic mud, strong H ₂ S smell
Station 6 2 cm										41.2	2.33	11/17/95		
Station 6 4 cm										40.4	2.29	11/17/95		
Station 6 6 cm										39.0	2.21	11/17/95		
Sta 6 2 cm from bot										31.9	1.81	12/4/95		
Station 7 surf	41 30 750 N	71 19 402 W	4.5	1 cm	7.07	7.7	12.5	7.00	13.2	34.9	1.98	11/17/95	silty clay with abundant small worms	Anoxic mud, strong H ₂ S smell
Station 7 2 cm										34.2	1.94	11/17/95		
Station 7 4 cm										33.1	1.88	11/17/95		
Sta 7 2 cm from bot										29.8	1.69	12/4/95		
Station 8 surf	41 30 768 N	71 19 430 W	7.6	1.5 cm	7.20	8.3	15.5	7.01	15.0	39.7	2.25	11/17/95	clayey silt with rare small worms	Anoxic mud, strong H ₂ S smell
Station 8 2 cm										35.2	1.99	11/17/95		
Station 8 4 cm										34.5	1.96	11/17/95		
Station 8 6 cm										34.2	1.94	11/17/95		
Sta 8 2 cm from bot										30.1	1.71	12/4/95		
Station 9 surf	41 30 805 N	71 19 427 W	6.1	1 cm	7.10	8.6	13.5	6.76	15.8	37.5	2.13	11/17/95	clayey silt with eel grass	Anoxic mud, H ₂ S smell
Station 9 2 cm										36.6	2.07	11/17/95		
Station 9 4 cm										36.5	2.07	11/17/95		
Sta 9 2 cm from bot										31.3	1.77	12/4/95		
Station 10 A surf	41 30 835 N	71 19 499 W	6.1	0.5 cm	7.17	8.3	10.0	7.14	14.2	42.0	2.38	11/17/95	sandy silt with abundant shells	Crepidula, oysters and gastropods abundant, strong H ₂ S smell
Station 10 A 2 cm										36.2	2.05	11/17/95		
Station 10 A 4 cm										35.7	2.02	11/17/95		
Station 10 A 6 cm										37.0	2.10	11/17/95		
Sta 10 A 2 cm from bot										29.8	1.69	12/4/95		
Station 10 B surf	41 30 835 N	71 19 499 W	6.1	0.5 cm	7.17	8.3	9.5	7.00	13.8	40.2	2.28	11/17/95		
Station 10 B 2 cm										35.8	2.03	11/17/95		
Station 10 B 4 cm										33.3	1.89	11/17/95		
Station 10 B 6 cm										33.0	1.87	11/17/95		
Sta 10 B 2 cm from bot										31.5	1.79	12/4/95		

TABLE 1

Sediment Characterization Stations for the OFFTA ERA

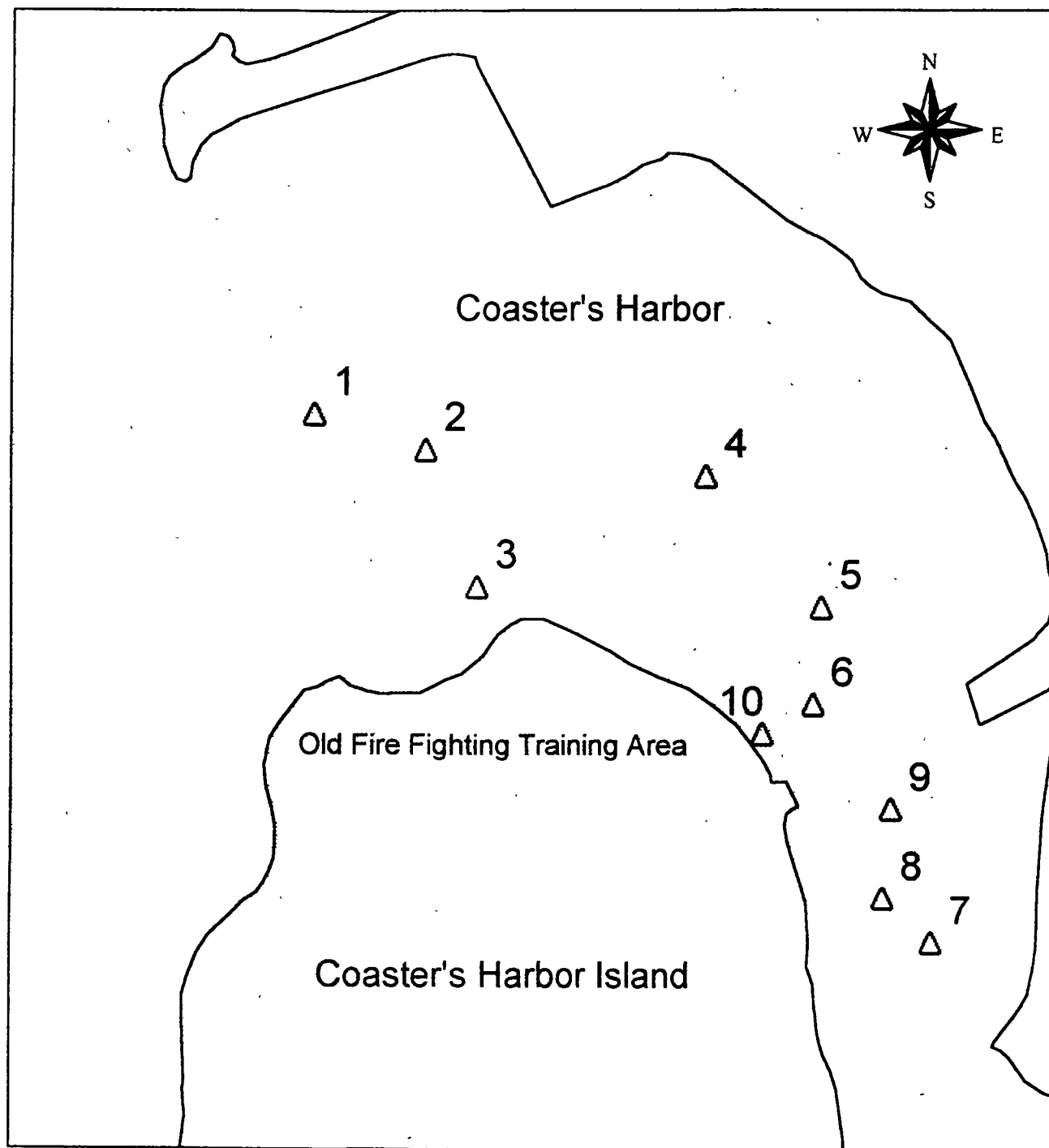


FIGURE 1